IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant	: Knowles, W.R.
Title	: Hair Loss Prevention
Serial No.	:
Filing Date	: herewith
Group Art Unit	:
Examiner	:

#1½ DKD 10/11/00

INFORMATION DISCLOSURE STATEMENT

Honorable Commissioner
of Patents and Trademarks
Washington, DC 20231

Sir:

Attached hereto is form PTO-1449 listing documents believed relevant to the subject application. It is respectfully requested that these documents be considered by the examiner and an initialed copy of each form be returned to the undersigned.

A search has been made. It is enclosed. No other material information as defined in 37 C.F.R. § 1.56(a) is known to exist.

It is believed that this disclosure complies with the requirements of 37 C.F.R. §§ 1.56, 1.97 and 1.98, and M.P.E.P. § 609. If for some reason the examiner considers otherwise, it is respectfully requested that the undersigned be called so that any deficiencies can be remedied.

A copy of each document is enclosed. These documents are not necessarily analogous art.

OTHER INFORMATION

Applicant wishes to advise the examiner that:

I. The claimed subject matter has been in experimental use for several years.

II. The inventor, Dr. Knowles, has discussed with potential licensees and research partners the possibility of obtaining a license to this technology.

Neither of these activities constitutes a patent ability bar under 35 U.S.C. 102(b).

I. THE CLAIMED SUBJECT MATTER HAS BEEN IN EXPERIMENTAL USE FOR SEVERAL YEARS

Dr. Knowles tested the invention for several years. This use was experimental. As such, it thus does not constitute a bar to patent ability as a "public use" or a "sale" within the meaning of section 102(b).

A. Dr. Knowles Tested the Invention To Confirm Its Asserted Utility

For experimental use, the basic test is that experimentation must be the primary purpose. Commercial exploitation, while allowed, must be incidental. M.P.E.P. §2133.03(e).

Here, Dr. Knowles tested compounds that fall within the scope of the application claims. This use has been experimental, because it "represented a bona fide effort to ascertain whether the claimed invention will answer its intended purpose." This testing entailed three parts. First, Dr. Knowles had a pharmacist formulate test samples. Second, Dr. Knowles had test subjects use these test samples. Third, Dr. Knowles evaluated the test results.

Dr. Knowles, a physician, had a pharmacist make test samples, some falling within the scope of the claims. Dr. Knowles disclosed the test compound formulations to only one person; the formulating pharmacist. That pharmacist made all test batches of the investigated compounds, until 1998. In 1998, that pharmacist joined a national chain pharmacy. Dr. Knowles thus changed pharmacists, and began using a replacement pharmacist to make test samples as needed.

Dr. Knowles tested the test samples on healthy human volunteers suffering from androgenic alopecia ("test subjects"). Test subjects were selected by Dr. Knowles from patients seeking surgical intervention against androgenic alopecia (*e.g.*, hair implants). As a potential alternative to expensive, potentially uncomfortable, and potentially

unsuccessful surgery, the test subjects volunteered to test the compounds under investigation.

Dr. Knowles then evaluated the effectiveness of the test samples. He did this by visual inspection of the test subjects' treated skin, using a 15x light magnifying lens. Dr. Knowles inspected the test subjects immediately before administration of a test sample, at four month intervals for the first year of testing, and thereafter as necessary.

In addition to inspecting test subjects personally, Dr. Knowles required the formulating pharmacist to visually inspect the test subjects to evaluate efficacy of the test compounds. Thus, each time a test subject visited the formulating pharmacist for a test sample refill, the pharmacist inspected the test subject, entering the visual observations in a computer database.

This was testing of the invention in the normal context of its technological development. This kind of testing is experimental activity. M.P.E.P. §2133.03 (e)(6).

Likewise, this testing was needed to determine "utility" and operability as those terms are used in 35 U.S.C. §101 and §112. Utility and operability testing is permissible experimentation. For example, for a chemical composition with no demonstrated utility (such as the

claimed compositions), testing to demonstrate utility is permissible. General Motors Corp. v. Bendix Aviation Corp., 102 U.S.P.Q. 58, 69 (N.D.Ind. 1954).

B. Dr. Knowles' Testing Meets ALL Eleven Factors Supporting The Experimental Use Exemption .

Eleven factors indicate that a given use is "experimental" in nature. M.P.E.P. § 2133.03(e)(4). The presence of many, or even some, of these factors indicates permissible "experimentation." Here, however, Dr. Knowles's testing shows *all eleven* of these factors.

1. *The nature of the invention is such that any testing must be to some extent public*

If the nature of the invention is such that any testing must be to some extent public, then such use, even if public, does not bar patent ability. M.P.E.P. § 2133.03 (e)(4)(a).

Here, the claimed invention can be demonstrated operable only by testing on human heads. Further, the test results may be biased by the effects of unusual head coverings worn by the test subjects during the test period. Thus, it was not possible to conceal the test subjects' heads for the duration of the tests. Thus, the experimentation was, of necessity, to some extent public.

This factor indicates that Dr. Knowles' use was not a forbidden public use, but "experimental" in nature.

2. *The testing needed to be done for a substantial period of time*

If the testing needs to be done for a substantial period of time, then such use, even if public, does not bar patent ability. M.P.E.P. § 2133.03 (e)(4)(b).

Here, the testing needed to be done for at least three years. Since topical minoxidil USP became commercially and widely available as ROGAINE (TM), commercially available from Pharmacia & Upjohn Inc., Bridgewater, New Jersey, it has become generally known in the art that minoxidil users experience a sudden drop in hair thickness after about thirty months of continuous use. Thus, Dr. Knowles needed to test the test samples for at least thirty months of continuous usage. Because the test subjects were, of necessity, involved in testing for long periods, it was impossible to sequester the test subjects in a private place. Thus, this use is not a public use, but an "experimental" use.

3. *The testing was done under Dr. Knowles's supervision and control*

If the testing is done under the supervision and control of the inventor, then such use, even if public, does not bar patent ability. M.P.E.P. §2133.03(e)(4)(c).

Here, the testing was done under the supervision and control of the inventor, Dr. Knowles. Dr. Knowles personally evaluated the effectiveness of the claimed formulations by visual inspection of the treated skin using a 15x light magnifying lens. As the attending physician, Dr. Knowles inspected the test subjects immediately before administration of a test composition, at four month intervals for the first testing year, and thereafter as needed.

In addition, Dr. Knowles required the dispensing pharmacist to visually inspect the test subjects to evaluate efficacy of the test compounds. Thus, each time a test subject visited the formulating pharmacist for new test sample, the dispensing pharmacist recorded the results of the visual evaluation in a computer database.

Because the testing was done under Dr. Knowles's supervision and control, this testing was "experimental" in nature.

4. *Dr. Knowles regularly inspected the invention during the experimentation*

If the inventor regularly inspects the invention during the experimentation, then such use, even if public, does not bar patent ability. M.P.E.P. § 2133.03(e)(4)(d).

Here, Dr. Knowles regularly inspected the invention during the experimentation. As noted above, as the treating physician, Dr. Knowles inspected the test subjects immediately before administration of a test composition, at four month intervals for the first year of continuous use of the test compounds, and thereafter as needed. Further, Dr. Knowles required the dispensing pharmacist to inspect each test subject on each prescription refill.

5. *Limitations were placed on test subjects to assure that their use was experimental*

If obligations and limitations are placed on test subjects to assure that their use is experimental, then such use, even if public, does not bar patent ability. M.P.E.P. §2133.03 (e)(4)(e).

Here, Dr. Knowles placed several limitations on the test subjects. Dr. Knowles limited the subjects' physical access to the experimental compounds. He made test samples available by prescription only. Test samples were available only through one specific pharmacist. The pharmacist dispensed the test samples in limited amounts (4

ounces), to require the test subject to revisit the pharmacist periodically, to obtain refills. Dr. Knowles prevented test subjects' potential hoarding of the test samples, by expiration dating the prescriptions, to automatically expire one year after originally written. Because Dr. Knowles put limitations on the test subjects to assure that their use was not a public use, the use was "experimental" use.

6. *Any sales associated with the experimentation were conditional*

If the sales associated with the experimental activity are conditional, then such sales, even if public, does not bar patent ability. M.P.E.P. § 2133.03(e)(4)(f).

Here, Dr. Knowles has never sold the claimed compounds, at all, conditionally or otherwise.

The only fees paid by the test subjects has been the reimbursement paid directly to the formulating pharmacist to buy the materials needed to make test samples, and the laboratory time incurred formulating the test samples and monitoring test sample results, and a $15 fee for each physician office visit, to defray part of the administrative and clerical expense required to monitor the test results.

7. *The length of time and number of cases of experimental testing was appropriate in light of that reasonably necessary*

If the length of time and number of cases in which experimental activity took place was appropriate viewed in light of what was reasonably necessary for an alleged experimental purpose, then such use, even if public, does not bar patent ability. M.P.E.P. §2133.03(e)(4)(g).

Here, the nature of the use investigated, the inadvertent destruction of the preliminary test results, and the necessity to obtain results showing results statistically different than (and thus synergistically beneficial compared to) compounds already known in the art, made a long and expensive investigation not only desirable, but necessary.

After ROGAINE (TM) brand minoxidil had been commercially marketed for some time, it became generally known in the art that minoxidil users experience a sudden drop in hair thickness after about thirty months of continuous use. It was thus necessary to perform long term testing to determine the time period beyond which the claimed compounds lose their effectiveness. It was thus initially thought necessary to test the claimed compounds for at least three years. That time was reached with no sudden loss in efficacy. Thus, to find the time at which

the test subjects experience the sudden drop in hair thickness, it was necessary to extend the duration of the testing. Testing was extended repeatedly. Surprisingly, however, unlike the compounds of the prior art, with the claimed compounds there seems to be no sudden drop in effectiveness, at all. This indicates that the mechanism of action is fundamentally different from that of the prior art. Where prior art compounds treat a disease state, leading to therapeutic tolerance and loss of effectiveness, the claimed compounds maintain a healthy hair state, apparently permanently.

Initial test results contained in the formulating pharmacist's computer were inadvertently destroyed in 1988. This forced Dr. Knowles to restart testing in 1988-89. By the following year, Dr. Knowles had identified, screened for suitability and accepted test subjects for participation in long term efficacy testing of test compounds. Approximately 1,054 test subjects were enrolled, a number needed to assure that the results obtained (after including test drop-outs and withdrawals) have the desired level of statistical validity.

8. *The test subjects had an obligation to supply Dr. Knowles with the test results*

If the test subjects have an express obligation to supply the inventor with the results of testing, then such use, even if public, does not bar patent ability. M.P.E.P. §2133.03(e)(4)(h).

Here, the test subjects had an express obligation to supply Dr. Knowles with the results of testing. Each test subject was obliged to submit for in-person evaluations. These were done both by the pharmacist (when refilling test samples) and by Dr. Knowles.

9. *The testing was done under Dr. Knowles's supervision and control*

If the inventor discloses to the test subjects unsatisfactory operation of the invention, then such use, even if public, does not bar patent ability. M.P.E.P. §2133.03 (e)(4)(I).

Here, Dr. Knowles, as an attending physician, disclosed to the test subjects the satisfactoriness of the test results.

Unsatisfactory test results were seen in 15% of the test subjects. This means that certain of the claimed compounds are *an order of magnitude* more effective than the topical minoxidil compounds of the prior art. These compounds show significant, and apparently permanent, prevention of hair loss in 85% of the test subjects. In

contrast, only 8% of uses of the topical minoxidil shows positive results.

While the claimed compounds are ten times more effective than the prior art compounds, however, the claimed compounds were not significantly effective on 15% of the test subjects. Dr. Knowles, as the attending physician, informed these test subjects of the unsuccessful test results. Test subjects were then counseled on alternative treatments available, including surgical intervention.

10. *Experimental samples not otherwise retrieved were used completely in testing*

If the inventor assures that each experimental sample not otherwise retrieved is to be used completely by the test subject, then such use, even if public, does not bar patent ability. M.P.E.P. §2133.03(e)(4)(j).

Here, the test subjects were instructed that each experimental sample was to be used completely. Dr. Knowles made the compounds available by prescription only, and only through one specific pharmacist approved by Dr. Knowles. The pharmacist was authorized to, and in fact did, dispense the test compounds in limited (4 ounce) amounts, to be used by the test subject completely. Because Dr. Knowles assured that each experimental sample was to be used completely by the test subject, the use was "experimental" use.

11. *The testing was done by a physician and pursuant to a doctor-patient relationship*

If the testing is done by a physician and conducted pursuant to a doctor-patient relationship, then such use, even if public, does not bar patent ability. M.P.E.P. §2133.03(e)(4)(k).

Here, the testing was conducted by Dr. Knowles, a board certified dermatologist. Dr. Knowles is a specialist in dermatological surgery. Test subjects were selected by Dr. Knowles from patients seeking surgical intervention (*e.g.*, hair implants) against androgenic alopecia. As a potential alternative to expensive, potentially uncomfortable, and potentially unsuccessful surgery, the test subjects volunteered to test the compounds under investigation. This was all done pursuant to the doctor-patient relationship.

Because the testing was done by a physician and pursuant to a physician-patient relationship, the testing is "experimental" use.

12. *The testing was not a public use or sale, under the factors discussed in the M.P.E.P.*

The M.P.E.P. enumerates eleven factors that indicate that testing is "experimental" rather than a public

use or sale. Here, Dr. Knowles' testing does not meet *some* of these factors. It meets **all** of them. Thus, according to the M.P.E.P., the testing cannot be considered a statutory bar to patent ability under 35 U.S.C. §102(b).

C. The Testing Lacks Any Of The Six Factors Indicating The Testing Was Commercial

Several factors indicate that prior uses constitute forbidden "on sale" commercialization activity, rather than legitimate product testing. These six "commercial" factors are enumerated in M.P.E.P. §2133.03 (e)(1)(1)-(6). None exist here.

Dr. Knowles did not prepare any contemporaneous "commercial" documents (*e.g.*, commercial product orders, product sales invoices, product sales receipts, product delivery schedules). Cf. M.P.E.P. §2133.03(e)(1)(1). To the contrary, Dr. Knowles did not charge for the claimed compounds *at all*.

The fact that Dr. Knowles did not intend to profit from this testing is supported by Federal law. Federal law prohibits a physician from profiting by recommending the purchase of a product (including an experimental drug or cosmetic product) that is reimbursable under a Federal health care program.

As an aside, patent law allows for commercial exploitation, so long as it is "merely incidental to the primary purpose of the experimentation." See M.P.E.P.. Thus, experimental activity may be pursued in an atmosphere of commercial exploitation. In certain circumstances, "even a sale may be necessary to legitimately advance the experimental development of an invention, if the primary purpose of the sale is experimental." M.P.E.P. §2133.03(e)(1), citing In re Theis, 204 U.S.P.Q. 188, 194 (CCPA 1979) and Robbins Co. v. Lawrence Mfg. Co., 178 U.S.P.Q. 577, 582 (9th Cir. 1973).

Dr. Knowles did not prepare or publish proposed price lists for the compounds under investigation. Cf. M.P.E.P. §2133.03 (e)(1)(2). To the contrary, Dr. Knowles did not charge for the claimed compounds *at all*.

Dr. Knowles did not display samples to potential customers. Cf. M.P.E.P. §2133.03(e)(1)(3). To the contrary, Dr. Knowles restricted access to samples, on a prescription only basis, to those patients qualified to participate as test subjects.

Dr. Knowles did not publicly demonstrate any prototypes, at trade shows or otherwise. Cf. M.P.E.P. §2133.03 (e)(1)(4). To the contrary, Dr. Knowles restricted access to samples, and evaluated the compounds under to the

confidentiality attending the physician-patient relationship.

Dr. Knowles did not demonstrate the invention at any trade show, fair, circus, nor anywhere else where an admission fee was charged. Cf. M.P.E.P. §2133.03 (e)(1)(5). To the contrary, Dr. Knowles used the compounds only under a confidential physician-patient relationship.

Dr. Knowles has not done any advertising in publicity releases, brochures, or periodicals. Cf. M.P.E.P. §2133.03 (e)(1)(6). To the contrary, Dr. Knowles has retained the test results confidential pending filing of the immediate application for letters patent.

Because the testing shows none of the six factors indicating illegitimate commercialization, the testing was not "commercial" in nature.

II. DR. KNOWLES HAS DISCUSSED THIS INVENTION WITH POTENTIAL LICENSEES AND RESEARCH PARTNERS

Dr. Knowles has discussed the claimed invention with several potential licensees. Part of these discussions involved the discussion of a potential license of Dr. Knowles's invention. Discussions regarding the licensing of intellectual property rights are not an "offer for sale" of the invention.

An assignment or sale of the rights to an invention (such as patent rights) is not a "sale" of the "invention" within the meaning of 35 U.S.C. §102(b). Moleculon Research Corp. v. CBS, Inc., 229 U.S.P.Q. 805, 809 (Fed. Cir. 1986). Rather, the sale must involve the offer of delivery of the physical invention itself. Id.

Here, Dr. Knowles did not offer to sell, supply or deliver the physical invention itself. Rather, Dr. Knowles offered only to license the intellectual property rights to the invention. Thus, these discussions are not "offers for sale" of the invention.

III. SUMMARY

Dr. Knowles extensive research on, *inter alia*, compounds falling within the scope of the claims, does not bar patenting these compounds. Rather, such testing demonstrates that the claimed compounds are synergistically effective vs. the prior art compounds, and thus merit patent protection.

Enclosed find the appropriate filing fee, a copy of the prior art search report, and the references cited therein.

Respectfully Submitted,

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